DEPARTMENT OF ENVIRONMENTAL QUALITY
PERMITTING and COMPLIANCE DIVISION
MONTANA POLLUTANT DISCHARGE ELIMINATION SYSTEM (MPDES)

Statement of Basis

PERMITTEE:	City of White Sulphur Springs
PERMIT NO.:	MT0020699
RECEIVING WATER:	Unnamed irrigation ditch
FACILITY INFORMATION:	
Name:	White Sulphur Springs, Waste Water Treatment Plant
Location:	latitude 46° 32' 29.5" N, longitude 110° 54' 48.6" W
Mailing Address:	PO Box 422 White Sulphur Springs, MT 59645
Contact:	Ed Rasmussen
Phone:	(406) 547- 3911
FEE INFORMATION	
Number of Outfalls:	1- (For Fee Determination Only)
Type of Outfall:	001 - Treated domestic wastewater

I. Permit Status

MPDES permit # MT-G580021 was issued on June 8, 1993 under the *General Discharge Permit for Facultative Sewage Lagoons*, and expired on May 31, 1998. The permittee submitted an MPDES application for renewal of the permit on September 25, 1997, and the permit has been administrative extended (April 1998) pending issuance of a new permit. The Department has determined that the status of the permit be changed from coverage under the *General Discharge Permit for Facultative Sewage Lagoons* into an individual MPDES permit. The basis for this decision is established by the following conditions:

1. Numeric limits for *Escherichia coli* bacteria will be required in this permit cycle. Numeric limits are not stipulated within the General Permit requirements for pathogens.
2. There have been eight effluent limit violations and eight reporting violations in the last five years.
3. There are substantial operational obstacles associated with the lagoons to provide adequate treatment of the municipal wastewaters (physical age of the system, large Inflow/Infiltration contributions, liner failure, and accepting septage into the system).

II. Facility Information

a. Facility Description

The permittee operates a two-cell facultative lagoon. The lagoons are approximately nine acres each, providing for 69 days of retention (TDH Facilities Plan 1982). The lagoons may be operated in either series or in parallel. Effluent is discharged to an irrigation ditch that may discharge to the South Fork of the Smith River approximately two and a half miles down stream. See Figure 1 for facility orientation. The facility is operated as an intermittent discharge; the permittee discharges approximately seven to eight months of the year. Discharge flow rate is measured with a bucket and stopwatch.

Design criteria are given in Table 1, although actual design criteria are not known, equivalent information will be calculated for the facility based on physical conditions of the facility. The current facility was last upgraded in 1958. The permittee retained engineering services through TDH Inc. in the 1980's to prepare a facilities plan. The permittee decided to implement the no action alternative due to the possibility of low ranking in the funding schedule.

Table 1: Current Design Criteria Summary (Source: Thomas, Dean and Hoskins, Inc, 1982)	
Facility Description: 2-celled facultative facility, no disinfection capabilities.	
Construction Date: 1958	Modification Date:
Equivalent Design Population: 1,800	Current Population: 984 (2000 Census)
Design Flow, Average (mgd): 0.18 (domestic wastewater)	Design Peak Hourly Flow (mgd): 0.75
Primary Cells: 2	Secondary Cells: 0
Number Aerated Cells: NA	Minimum Detention Time-System (days): 69
Design BOD Removal (%): unknown	Design BOD Load (lb/day): 342 lbs (@ 0.20 ppcd)
Design SS Removal (%): unknown	Design SS Load (lb/day): 396 lbs (@ 0.22 ppcd)
Influent Flow (mgd): 0.51 (353 gpcd during I/I study)	Source: TDH Facilities Plan (Apr. 1982)
Collection System Combined [ ] Separate [X]	Estimated I/I: 0.33 mgd
SSO Events (Y/N): none reported	Bypass Events (Y/N): none reported
Disinfection (Y/N): no	Type: NA
Discharge Method: Controlled	
Sludge Storage: NA	
Sludge Disposal: NA	Permit Number: NA

An equivalent population can be calculated as follows. The effective water surface area of the lagoons is 17.1 acres. At a 20 lb BOD/acre/day load, the equivalent BOD load to the lagoons is 342 lb/BOD. Using 0.20 lb BOD per capita and the equivalent BOD load of 342 lbs/day an equivalent population is calculated at 1800 individuals.

Design Calculations:
BOD_5 Calc. Design Load = (20lbs/day) * (17.1 acres) = 342 lbs/day
Calc. Design Population = (342 lb/day BOD_5) / (0.20 BOD_5- design factor) = 1800 individuals
TSS Calc. Design Load = (1800 People) * (0.22-TSS design factor) = 396 lbs/day
Calc. Design flow = (1800 people) * (100 gpcd) = 180000 gpd or 0.180 mgpd

One lift station is operated by the town. No sanitary sewer overflows or backups into basements have been reported.

The Department has completed one permit compliance inspections in December 2002 and a routine O&M inspection in November 2005. No permit violations were noted during the time of the December 2002 inspection. The routine O&M inspection was conducted by the planning, prevention and assistance division's, technical and financial assistance bureau which identified a number of issues that could limit performance of the facility.

b. Effluent Characteristics

A summary of the discharge is given in Table 2. The period of record is from January 2000 through December 2005.

Table 2: Summary of Discharge Data, mgd (Period of record: January 2000 through December 2005) WSS

Month	2000 30-day Average	2001 30-day Average	2002 30-day Average	2003 30-day Average	2004 30-day Average	2005 30-day Average
January	0.28	ND	ND	ND	ND	ND
February	0.28	ND	0.36	ND	ND	ND
March	0.28	0.36	0.36	ND	ND	ND
April	0.36	0.36	ND	0.36	0.36	0.36
May	0.36	0.36	0.36	0.36	0.36	0.36
June	0.36	0.36	0.36	0.36	0.36	0.36
July	0.28	0.504	0.36	0.36	0.36	0.36
August	0.28	ND	0.36	0.36	0.36	0.36
September	0.36	ND	0.36	0.36	0.36	0.36
October	0.36	0.43	0.36	0.28	0.36	0.36
November	0.28	0.36	0.36	0.28	0.36	0.36
December	0.0036	0.36	0.36	ND	ND	ND
Maximum	0.36	0.504	0.36	0.36	0.36	0.36
Minimum	0.004	0.36	0.36	0.28	0.36	0.36

Footnote: "ND" means the permittee reported "No discharge" on monthly DMR.

The previous permit required monthly reporting of flow, biochemical oxygen demand (BOD_5), total suspended sediment (TSS), and seasonal fecal coliform bacteria. Fecal coliform bacteria monitoring was only required when discharges occurred during July, August, and/or September. Results for the period of record for January 2000 through December 2005 are presented in Table 3. To date, no influent samples have been collected and analyzed for BOD_5 and TSS.

Table 3: Effluent Characteristics for the Period of Record January 2000 through December 2005 WSS

Parameter	Location	Units	Previous Permit Limits (7-day / 30-day)	Minimum	Maximum	Average	Number of Samples
Flow, Daily Average	Effluent	mgd	NA	0.0036	0.504	0.36	54[1]
BOD_5	Effluent	mg/L	45/30	5.0	54.8	17.4	54[1]
		lbs/day	NA	-	-	-	-
TSS	Effluent	mg/L	135/100	3.3	136.7	34.6	54[1]
		lbs/day	NA	-	-	-	-
Fecal Coliform Bacteria	Effluent	#/100-mL	NA	1	184	21	6[1]
Total Ammonia, as N	Effluent	mg/L	NA	1.78	1.78	1.78	1[2]
Nitrate + Nitrite, as N	Effluent	mg/L	NA	0.46	0.46	0.46	1[2]
Total Kjeldahl Nitrogen (TKN), as N	Effluent	mg/L	NA	4.47	4.47	4.47	1[2]
Total Nitrogen, as N	Effluent	mg/L	NA	4.93	4.93	4.93	1[2]
		lbs/day	NA	-	-	-	-
Total Phosphorus, as P	Effluent	mg/L	NA	0.688	0.688	0.688	1[2]
		lbs/day	NA	-	-	-	-

1. Data from DMR submitted to the Department.
2. Datum from compliance inspection 12/11/2002

The permittee has had five BOD_5 exceedences since January 2000. In every case, the permittee reported the exceedence was associated with spring or fall turnover periods. For the same period of record, there has been three TSS exceedences reported. Again, the permittee reported the exceedences have been attributed to the spring or fall turnover periods. In response to these numeric violations the permittee has modified the discharging schedule to exclude these periods. In the last three years there have not been any numeric exceedences for BOD_5 or TSS.

The previous permit did not contain limits for fecal coliform bacteria but required effluent monitoring. The permittee has failed to monitor for fecal coliform seven times during the period of record.

III. Proposed Technology-Based Effluent Limits (TBEL)

The Montana Board of Environmental Review has adopted by reference 40 CFR 133 which sets minimum treatment requirements for secondary treatment or equivalent for publicly owned treatment works (POTW's) (ARM 17.30.1209(1)). National secondary treatment requirements as described in 40 CFR 133 may be incorporated into wastewater discharge permit for a POTW (ARM 17.30.1209(2)). Secondary treatment is defined in terms of the minimum level of effluent

quality attainable by secondary treatment in terms of the parameters BOD_5, TSS, percent removal of BOD_5 and TSS, and pH.

The secondary treatment requirement may be modified on a case-by-case basis for facilities that are eligible for treatment equivalent to secondary (TES, 40 CFR 133.105), for BOD_5, TSS, and/or percent removal. To determine if a facility is eligible for TES the facility must meet the requirements of 40 CFR 133.101(g), summarized as follows:

1) The 95th percentile of the 30-day BOD and TSS concentrations in a minimum 2-year period, excluding upsets, bypasses, operational errors and unusual conditions [40 CFR 133.101(f)] exceed the minimum levels established for secondary treatment requirement;
2) The treatment works utilize a trickling filter or waste stabilization pond; and,
3) The treatment works utilizes biological treatment that consistently achieves a 30-day average of at least 65 percent removal [40 CFR 133.101(k)].

In addition to these requirements, the modification may not exceed the load allocations established in a permit issued prior to April 29, 1993, unless the Department has determined the changes in water quality to be nonsignificance (ARM 17.30.702(16)(d)). Waste stabilization ponds may include common biological treatment systems such as facultative, aerated, or aerobic lagoons (Design Manual, Municipal Wastewater Stabilization Ponds, EPA 625-1-83-015 Oct. 1983).

In addition to TES, permitting agencies may give special consideration to treatment works that employ waste stabilization ponds as the primary method for treating wastes and for system receiving less concentrated influent. Alternative State Requirements (ASR) may be applied as limits in permits for lagoon system if historic data indicates that the TES limits in cannot be achieved. The 30-day ASR for TSS in Montana is 100 mg/L and the 7-day limit is 135 mg/L.

Limits established in the previous permit applied the secondary treatment standard for BOD_5 and the ASR for TSS (Table 3).

The rational for the proposed technology based effluent limits are as follows:

1) BOD_5 Limits: the 95th percentile based on the 30-day the BOD_5 is 35.1 mg/L, for the period of record. The Department can not relax BOD limits without justification from in-stream studies demonstrating additional loads will not affect beneficial uses or ecological integrity. The facility will be expected to meet national secondary limits; and
2) TSS limits: ASR will apply. The 95th percentile for the complete dataset for the period of record is 86.8 mg/L; this value exceeds the TES 30-day average value of 45 mg/L.
3) The percent removal of TSS will be 65% year round, as required by 40 CFR 133.105(b).

Table 4. Proposed Technology-Based Effluent Limits				
	Concentration (mg/L) (1)		Load (lbs/day) (1)	
Parameter	7-day Average	30-day Average	7-day Average Load	30-day Average Load
BOD_5	45	30	67.5	45.0
TSS	100	135	202	150
pH (s.u.)	Within the range of 6.0 to 9.0			
BOD_5 % removal	85%			
TSS % removal	65%			
(1) See Part V. of the permit for explanation of terms.				

Load limits were calculated as follows:

Load (lb/day) = Design Flow (mgd) x Concentration (mg/L) x Conversion Factor (8.34).

BOD:
7-day Load = 0.18 mgd x 45 mg/L x 8.34 = 67.5 lbs/day
30-day Load = 0.18 mgd x 30 mg/L x 8.34 = 45.0 lbs/day

TSS:
7-day Load = 0.18 mgd x 135 mg/L x 8.34 = 202 lbs/day
30-day Load = 0.18 mgd x 100 mg/L x 8.34 = 150 lbs/day

Nondegradation

The permit does not authorize a new or increased discharge, as defined in ARM 17.30.702(16), and therefore is not subject to the criteria in ARM 17.30.715(1).

Pursuant to "Nondegradation Rule-Calculation of Load Limits for POTWs, (Revision 3)" calculating load limits for: Nitrogen, Phosphorus, BOD5 and TSS will define a threshold for increased source nonsignificance requirements.

Load allocations are given in Table 5. These allocations define baseline allocated loads for the facility. Any increase above this amount is subject to the provisions of Montana's Nondegradation Policy 75-5-303, MCA and ARM 17.30.705 *et seq*. These allocated loads were calculated based on the equivalent design population using the following equations.

Total Nitrogen Load Allocations

Calculated Design Population = 1800

Total Nitrogen Load Allocation = (1800) x (0.028) = 50.4 lb/day

Phosphorus Load Allocation

Total Phosphorus Load Allocation = (1800) x (0.007) = 12.6 lb/day

BOD_5 Load Allocation

BOD_5 Load Allocation = (Design flow, mgd) x [BOD_5] x (8.338) = lb/day
= (0.180) x [30] x (8.338) = 45 lb/day

TSS Load Allocation

TSS Load Allocation = (Design Flow, mgd) x [TSS] x (8.338) = lb/day
= (0.18) x [100] x (8.338) = 150 lb/day

The tabulated data in Table 5, shows the calculated Load Allocations and a summary of the actual average load discharging from the facility. This data was generated from the self-monitoring data reporting requirements from the prior permit. Data used was from 2000 through 2005. This data indicates that the facility did not exceed the threshold load values calculated above for BOD_5 and TSS. Total Nitrogen and Phosphorus were not monitored during this period. Loads for BOD_5 and TSS were calculated using an annual average of the monthly discharge flow rates from DMR report forms.

Table 5: Calculated Allocated and Annual Actual Loads

Parameter	**Allocated Load** (lbs/day)	**Actual Annual Load** (lbs/day)					
		2000	2001	2002	2003	2004	2005
BOD_5	45	7.05	5.42	5.8	2.9	3.2	3.6
TSS	150	13.8	10.9	11.3	5.1	5.1	10.2
Total Nitrogen	50.4	NA	NA	NA	NA	NA	NA
Total Phosphorus	12.6	NA	NA	NA	NA	NA	NA

NA- Not available

III. Water-Quality Based Effluent Limits

A. Scope and Authority

The Montana Water Quality Act (Act) states that a permit may only be issued if the Department finds that the issuance or continuance of the permit will not result in pollution of any state waters 75-5-401(2), Montana Code Annotated (MCA). Montana water quality standards at ARM 17.30.637(2) require that no wastes may be discharged such that the waste either alone or in combination with other wastes will violate or can reasonably be expected to violate any standard.

ARM 17.30.1344(1) adopts by reference 40 CFR 122.44 which states that MPDES permits shall include limits on all pollutants which will cause, or have a reasonable potential to cause an excursion of any water quality standard, including narrative standards. The purpose of this section is to provide a basis and rationale for establishing effluent limits, based on Montana water quality standards, that will protect designated uses of the receiving stream.

The Act authorizes the issuance of point source discharge permits on a listed water body pending completion of a TMDL provided that: 1) the discharge is in compliance with the provisions of 75-5-303 (Nondegradation Policy), MCA; 2) the discharge will not cause a decline in water quality for the parameters for which the water body is listed; and, 3) the minimum treatment requirements under 75-5-703(10), MCA are met.

B. Receiving Water

Treated wastewater is discharged to an irrigation ditch bordering the facility. Seasonally the waters within the irrigation ditch may consist of the following: During the irrigation season the flows in the ditch may be composed of water diverted from the North Fork of the Smith River and/or from Hot Springs Creek. During the non-irrigation season the irrigation ditch is ephemeral and effluent dominated, if and when the facility discharges. Tail waters from the irrigation ditch may report to the South Fork of the Smith River, two and a half miles down stream. The 4th Hydrologic Unit Code (HUC) for the Smith River is10030103, defined by the United States Geological Survey (USGS).

The South Fork of the Smith River and the irrigation ditch are classified as B-1 waters, [ARM 17.30.610(1)(a)]. 'Waters classified as B-1 are to be maintained suitable for drinking, culinary and food processing purposes, after conventional treatment; bathing, swimming and recreation; growth and propagation of salmonid fishes and associated aquatic life, waterfowl and furbearers; and agricultural and industrial water supply', ARM 17.30.623(1).

The Smith River (without distinction) was listed on the Year 1996 (303)(d) list, with probable impairments listed as Aquatic Life Support and Cold Water Fishery-Trout, with probable causes identified as: Flow alteration, Siltation, and Thermal modifications. At the point of discharge the South Fork of the Smith River is not listed on the Year 2004 (303)(d) list. Whereas the Smith River, starting at the confluence of the North and South Forks several miles down stream is listed for partial supporting Aquatic Life Support, Cold Water Fishery- Trout and Primary Contact Recreation. Probable causes for these impairments are listed as: Dewatering, Flow alteration, Nutrients, Pathogens and Phosphorus.

C. Receiving Water Characteristics

No water quality monitoring has been conducted on Hot Springs Creek at the diversion structure supplying the irrigation ditch the effluent reports to. Characterization of water quality or quantity are unknown in the irrigation ditch.

D. Applicable Water Quality Standards

As an existing source the following water quality standards will be used for this permit renewal.

1. Surface Water Quality Standards

Specific Water Use Classification for B-1 Waters
Pursuant to ARM 17.30.623(2), no person may violate the specific water quality standards for waters classified as B-1. This includes all the applicable standards set forth in parts (a) through (k), including Department Circular DEQ-7 (February 2006).

2. General Treatment Standards
Discharges are subject to the applicable sections of ARM 17.30.635, specifically parts (1) and (2) and (4).

3. General Prohibitions
Discharges are subject to the applicable sections of ARM 17.30.637, specifically parts (1) and (2), (5), and (6).

E. Reasonable Potential
Water quality based effluent limits must be developed for Pollutant of Concern (POC) when there is a reasonable potential (RP) for the discharge to cause or contribute to an exceedences of water quality standards (WQS).

Due to the lack of receiving water and effluent data, reasonable potential calculations can not be conducted at this time. The permit will contain effluent monitoring conditions to characterize the effluent for future permit development.

F. Mixing zone

The applicant has not requested a mixing zone nor has a mixing zone been granted in previous permits. Based of this information the Department will not grant a mixing zone in this permit development.

G. Proposed Water Quality-Based Effluent Limits

Pollutants typically present in municipal wastewater that may cause or contribute to a violation of water quality standards include conventional pollutants such as biological material (measured by BOD_5), suspended solids, oil & grease, pathogens, and pH; nonconventional pollutants such as chlorine, ammonia, nitrogen and phosphorus; and toxics such as metals and organics**.**

1. Conventional Pollutants

The facility will be required to meet national secondary treatment standards, which are established at a level that is adequate to provide protection of state waters. No additional WQBEL will be required for these parameters (BOD_5, TSS and pH).

Oil and grease - The oil and grease instantaneous maximum limit is 10 mg/L [ARM 17.30.637(1)(b).

Escherichia coli - Montana water quality standards have been revised to replace fecal coliform bacteria with *Escherichia coli (E. coli*) to reflect the latest federal guidance. Applicable standards for *E. coli* are:

April 1 through October 31 of each year - the geometric mean number of *E. coli* must not exceed 126 colony forming units (cfu) per 100 milliliters (ml) and 10% of the total samples may not exceed 252 cfu per 100 ml during any 30-day period [ARM 17.30.625(2)(a)(i)]; and

November 1 through March 31 of each year - the geometric mean number of *E. coli* must not exceed 630 cfu per 100 ml and 10% of the total samples may not exceed 1,260 cfu per 100 ml during any 30-day period [ARM 17.30.625(2)(a)(ii)].

At present, the permittee does not have the capability to disinfect. Should the permittee choose and upgrade to use chlorine disinfection, limits are 0.011 mg/l at the end of the discharge pipe. Analytical methods require chlorine samples to be analyzed immediately (40 CFR 136). Therefore, the permittee must analyze, on-site, total residual chlorine using a chlorine meter and approved method. The method must achieve a minimum detection level of 0.1 mg/l. Sampling of effluent with analytical results less than 0.1 mg/l is considered in compliance with the chlorine limit. If ultraviolet disinfection (UV) is utilized, chlorine effluent limits in Table 8 will not apply.

2. Non-conventional Pollutants

Total Residual Chlorine (TRC) - The facility is not disinfecting its effluent, so no chlorine limit is necessary.

Ammonia - The surface water quality standards for ammonia are pH and temperature dependent. Due to the lack of ambient data, standards for use in the permit development cannot be calculated. The permittee will be required to monitor its effluent for pH and temperature so ammonia standards may be calculated in future permit cycles. No mixing zone will be granted for ammonia.

3. Toxic Pollutants

Whole Effluent Toxicity (WET), metals and organic effluent limitations will not be required this permit due to the absence of significant industrial contributors to the system.

4. Nutrients (Total Nitrogen and Total Phosphorus)

Although standards for nutrients have yet to be adopted, the ultimate receiving water (the unnamed irrigation ditch has not been listed as impaired. To be able to characterize the affects

nutrients have on the receiving water, the permittee will be required to monitor its discharge for these parameters.

IV. Proposed Effluent Limits

a. Outfall 001

Effluent Limitations: Outfall 001				
Parameter	Units	Average Monthly [1]	Average Weekly [1]	Maximum Daily [1]
Biological Oxygen Demand (BOD_5)	mg/L	30	45	--
	lbs/day	45	67.5	--
Total Suspended Solids (TSS)	mg/L	100	135	--
	lbs/day	150	202	--
E. coli – Summer [2,3]	CFU/100-mL	126	--	252
E. coli – Winter [3,4]	CFU/100-mL	630	--	1,260
Total Residual Chlorine [5]	mg/L	0.011	--	0.019

Footnotes:
1. See Definition section at end of permit for explanation of terms.
2. April 1 through October 31
3. Pathogen limits become effective January 1, 2011.
4. November 1 through March 31
5. Minimum level for Total Residual Chlorine (TRC) is 0.10 mg/L. For compliance purposes, sample less than this value shall be determined to be in compliance with this limit.

Effluent pH shall remain between 6.0 and 9.0 unless a variation is due to natural biological processes. For compliance purposes, any single analysis and/or measurement beyond this limitation shall be considered a violation of the conditions of this permit.

85 Percent (%) Removal Requirement for BOD_5:
The arithmetic mean of the BOD_5 for effluent samples collected in a period of 30 consecutive days shall not exceed 15% of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period (85% removal). This is in addition to the concentration limitations on BOD_5.

65 Percent (%) Removal Requirement for TSS:

The arithmetic mean of the TSS for effluent samples collected in a period of 30 consecutive days shall not exceed 15% of the arithmetic mean of the values for influent samples collected at approximately the same times during the same period (85% removal). This is in addition to the concentration limitations on TSS.

There shall be no discharge of floating solids or visible foam in other than trace amounts.

There shall be no discharge which causes visible oil sheen in the receiving stream.

V. Monitoring Requirements

a. Outfall 001

Monitoring requirements in the permit are based on the type of treatment facility and the strategy of the discharge (e.g. controlled). The permittee will monitor effluent discharge flow rate and quality at the effluent structure. Influent samples will be collected from the open channel in the manhole at the influent control structure.

Monitoring Requirements				
Parameter	Unit	Sample Location	Sample Frequency	Sample Type[1]
Flow	mgd	Effluent	3/Week	Instantaneous
Flow, Duration of Event	# days	Effluent	NA	Calculated
5-Day Biological Oxygen Demand (BOD_5)	mg/L	Influent [2]	1/Month	Composite
	mg/L	Effluent	1/Week	Composite
	% Removal [3]	NA	1/Month	Calculated
	lbs/day	Effluent	1/Month	Calculated
Total Suspended Solids (TSS)	mg/L	Influent [5]	1/Month	Composite
	mg/L	Effluent	1/Week	Composite
	% Removal [3]	NA	1/Month	Calculated
	lbs/day	Effluent	1/Month	Calculated
pH	s.u.	Effluent	1/Week	Instantaneous
Temperature	°C	Effluent	1/Week	Instantaneous
E. coli [4]	cfu./100ml	Effluent	1/Week	Grab
Total Residual Chlorine[8]	mg/L	Effluent	Daily	Grab
Oil and Grease [5]	mg/L	Effluent	1/Quarter	Grab
Total Ammonia, as N	mg/L	Effluent	1/Month	Grab
Nitrate + Nitrite, as N	mg/L	Effluent	1/Quarter	Grab
Kjeldahl Nitrogen, as N	mg/L	Effluent	1/Quarter	Grab
Total Nitrogen, as N [6]	mg/L	NA	1/Quarter	Grab
	lbs/day	NA	1/Quarter	Calculated
Total Phosphorus, as P	mg/L	Effluent	1/Quarter	Grab
	lbs/day	NA	1/Quarter	Calculated
Total Dissolved Solids (TDS)	mg/L	Effluent	1/Quarter	Grab
Dissolved Oxygen	mg/L	Effluent	1/Quarter	Grab
Whole Effluent Toxicity, Acute [7]	% Effluent	Effluent	2/Year	Grab

Footnotes:

1. See Definition section at end of permit for explanation of terms.
2. Influent BOD and TSS samples shall be collected at the specified frequency even if no effluent discharge occurs in the monitoring period
3. Refer to Part I.C of the MPDES permit for a narrative discussion and additional details.
4. EPA method 1603, Modified mTEC agar, or equivalent.
5. Use EPA Method 1664, Revision A: N-Hexane Extractable Material (HEM), or equivalent.
6. Calculated as the sum of Nitrate + Nitrite (as N) and Total Kjeldahl Nitrogen (as N) concentrations.
7. Semi-annual monitoring required in the forth calendar year after the effective date of the permit.
8. The Permittee is only required to sample for total residual chlorine if chlorine is used as a disinfectant in the treatment process. If chlorine is *not* used, write "NA" on the DMR for this parameter.

VI. Special Conditions/Compliance Schedule

ARM 17.30.1342 requires that permittees furnish to the Department, within a reasonable time, information which the department may request to determine compliance with this permit.

a. Flow Measurement

Currently, there is no effluent flow measuring device to adequately measure flow.

i. Authority: ARM 17.30.1342(10)(a) and 75-5-602(3), MCA
This rule and statute requires that samples and measurements taken for the purpose of monitoring must be representative of the monitored activity and the owner or operator of a facility must install, use and maintain monitoring equipment (flow measurement device) to effectively monitor the discharge.

ii. Schedule:
By December 31, 2007, the permittee shall submit plans and specification for the design and a schedule for construction of a primary flow measurement device for the effluent flow streams.

By December 31, 2008 the permittee will be required to construct and commission the effluent flow measuring structure.

b. Inflow/Infiltration

i. Authority:
Federal requirements given under 40 CFR 122.21(j)(2)(i) state that POTWs with a design flow greater than 0.1 mgd will provide inflow and infiltration (I/I) information during permit renewal. Currently the collection system and treatment facility have been identified as having excessive I/I. Excessive I/I has been determined to be detrimental to the collection system capacity and to reducing biological activity and retention times in the treatment works. The renewal application (EPA Form 2A) for the next permit cycle requires information quantifying I/I and what, if any, steps the permittee is taking to minimize I/I.

ii. Schedule:
By December 31, 2007, the permittee shall submit plans and specification for a comprehensive I/I investigation that evaluates and identifies I/I contributions and effects on the collection system. The investigation shall evaluate base flows, storm water induced inflows and other contributions (sump pumps, building drains, dewatering drains, etc.) to the collection system.

The permittee shall (by December 31, 2008 or one year after plan and specification approval) conduct the I/I investigation as presented in the plans and specifications. By June 30, 2009, the permittee shall submit a report outlining the I/I investigation and present the findings. The permittee shall include in the report an improvement plan and schedule for the reduction of I/I into the system. The permittee shall submit the schedule to the Department for review and approval. The plan and schedule must address the most serious shortcomings of the system to eliminate those influences which are economically practicable.

c. Pathogens

i. Authority

ARM 17.30.637(1)(d) states that state surface waters must be free from substances attributable to municipal discharges that will create concentrations which are toxic or harmful to human health. Effluent quality is limited to conditions listed in Part I.B. of the permit.

ii. Schedule

Past data show the facility may not meet the proposed effluent *E. coli* limits. The permittee shall submit a proposed plan and schedule describing how final pathogen effluent limits will be met to the Department as soon as possible but no later than April 1, 2007. The permittee will submit written annual progress reports documenting the milestones accomplished toward meeting the final limits will be submitted by the permittee to the Department by January 28 of 2008, 2009, and 2010.

Final pathogen effluent limits, as measured by *E. coli*, are effective beginning January 1, 2011.

In accordance with ARM 17.30.1342(11), all reports, plans or information submitted to the Department must be signed and certified in accordance with Part IV.G of the permit and ARM 17.30.1323. Legible copies of these reports shall be submitted to the Department at the following address:

Montana Department of Environmental Quality
Compliance Section Supervisor
Water Protection Bureau
PO Box 200901
Helena, MT 59620-0901

VIII. Other

Molloy Determination

On September 21, 2000, a U.S. District Judge issued an order stating that until all necessary total maximum daily loads (TMDLs) under Section 303(d) of the Clean Water Act are established for a

particular water quality limited segment (WQLS), the State is not to issue any new permits or increases under the MPDES program. The order was issued in the lawsuit Friends of the Wild Swan v. U.S. EPA, et al. (CV 97-35-M-DWM), District of Montana and Missoula Division.

The Montana Water Quality Act authorizes the issuance of point source discharge permits on a listed water body pending completion of a TMDL provided that: 1) the discharge is in compliance with the provisions of 75-5-303 (Nondegradation Policy), Montana Code Annotated (MCA); 2) the discharge will not cause a decline in water quality for the parameters for which the water body is listed.

The DEQ finds that renewal of this permit does not conflict with Judge Molloy's Order (CV 97-35-M-DVM) because: 1) it is not a new permit; 2) the actual load for BOD_5, TSS, nitrogen and phosphorus from the treatment works will not exceed the allocated load and the permit is in compliance with the provisions of 75-5-303 MCA.

IX. Information Sources

Clean Water Act (CWA), 33 U.S.C. 1251 *et seq.*

US Code of Federal Regulations, 40 CFR Part 122 -The National Pollutant Discharge Elimination System

Montana Water Quality Act, MCA 75-5-101 *et seq.*

Administrative Rules of Montana

- Title 17, Chapter 30, Sub-chapter 5 - Mixing Zones in Surface and Ground Water (Nov 2004)
- Title 17, Chapter 30, Sub-chapter 6 - Surface Water Quality Standards (Oct 2005)
- Title 17, Chapter 30, Sub-chapter 7 - Nondegradation of Water Quality (Oct 2003)
- Title 17, Chapter 30, Sub-chapter 12- Montana Pollutant Discharge Elimination System (MPDES) Standards (Mar 2003)
- Title 17, Chapter 30, Sub-chapter 13 - Montana Pollutant Discharge Elimination System (MPDES) Permits (Mar 2003)

Circular DEQ-7 (February 2006), Montana Numeric Water Quality Standards
Circular DEQ-2 (September 1999), Design Standards for Wastewater Facilities

"Montana List of Waterbodies in Need of Total Maximum Daily Load Development," 303(d) list, dated 1996 and 2004.

Technical Support Document for Water Quality-Based Toxics Control, EPA 50529001, March 1991

1999 Update of Ambient Water Quality Criteria for Ammonia,

EPA 822-R-99-014, December 1999

Prepared by: James Lloyd, November 2006

White Sulphur Springs Facility Orientation